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Salivary Matrix Metalloproteinase (MMP-8) in Relation to Periodontal diseases among Ischemic Heart Disease Patients in a single cardiac center in Baghdad, Iraq (Comparative Study)

A Thesis
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Abstract

Background: Coronary artery disease is the most common cardiovascular disease, progresses over several years and affects millions of people worldwide. Chronic infections may contribute to the systemic inflammation and enhance the risk for coronary artery diseases. Oral inflammation, are the most common chronic infections. Salivary biomarkers, like matrix metalloproteinases, play an important role in inflammatory processes.

Aim of the study: The aim of this study was to assess the periodontal health status among groups of patients with coronary artery disease those undergone diagnostic cardiac catheterization (coronary angiography). In addition to that, to estimate the level of salivary matrix metalloproteinase - 8 in relation to periodontal health condition in comparison with a control group.

Subjects, materials, and methods: A cross sectional, case-control study was conducted, Ninety subjects, aged 45-50 years old, were seeking treatment for chest pain, in Ibn Albitar center for cardiac surgical treatments in Baghdad, Iraq, from the mid of December 2016 to the mid of April 2017. Subjects were collected according to electrocardiogram, echocardiogram, and treadmill test. Those with positive treadmill test did coronary angiography, and the result was either severe ischemic heart disease in those with critical lesions (30 patient), or mild ischemic heart disease in those with non-critical lesions (30 patient). Another 30 subject was in the control group, who scored a negative result in the treadmill test, with no need for coronary angiography. Before oral examination, unstimulated saliva was collected from all subjects to estimate matrix metalloproteinase 8 level and Salivary flow rate. Plaque index, gingival

condition, Probing pocket depth, clinical attachment level, and number of missing teeth were assessed.

Result: Mean values of plaque index, gingival index, and clinical attachment levels were higher among the severe ischemic heart disease group, as compared to mild ischemic heart disease and the control groups with statistically highly significant difference. The control group recorded the lowest mean value of missing teeth as compared with both study groups. Salivary flow rate level was higher among the mild ischemic heart disease group compared to the severe ischemic heart disease group, differences were statistically highly significant. Salivary matrix metalloproteinase 8 level was slightly higher among the mild ischemic heart disease group than in the control and the severe ischemic heart disease groups, with statistically no significant difference. According to the health status of all the subjects enrolled in this study, mean value of plaque index, gingival index, probing pocket depth, and clinical attachment level were higher among the hypertensive patients than the non-hypertensive patients. Hypertensive patients showed higher mean value of salivary matrix metalloproteinase than that observed for the non-hypertensive patients with statistically significant differences.

Conclusions: Although periodontal and gingival parameters revealed higher percentage of occurrence among the severe ischemic heart disease group, salivary matrix metalloproteinase 8 levels were found to be independent of the cardiac condition.